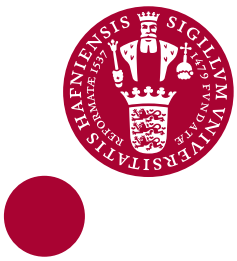

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Human Activity between Nature and Society: The Negotiation of Infertility in China

Ayo Wahlberg

Recent debate among geologists about whether or not a new geological era has dawned provides a helpful entry point for a chapter that aims to unpack the different ways in which a notion of 'human modification' (or anthropogenic effect) allows us to query nature/society separations. The sticking point in this debate concerns whether or not the 'scale of human modification of the earth' in the past century or so has been comparable to the kinds of meteorite strikes, tectonic collisions, and volcanic eruptions that are deemed to have punctuated previous geological eras. That is to say, the 'Anthropocene' – if there indeed is such a '-cene' – is the result, not of geological events, but rather, of 'human activity', 'human influence', 'human impact', 'human modification', or 'human intervention' and therefore scientists have been busy deliberating whether or not a 'human imprint' can be perceived in sedimentation, carbon dioxide levels, rates of biotic change, sea levels, etc. An Anthropocene Working Group has been formed "to critically compare the current degree and rate of environmental change, caused by anthropogenic processes, with the environmental perturbations of the geological past" with a call to include botanists, zoologists, atmospheric scientists, ocean scientists, as well as geologists in this task (Zalasiewicz et al. 2010: 2230).

While the question of whether or not we are living in the Anthropocene is academic, the effects of anthropogenic processes are certainly not. And indeed, it is exactly anthropogenic effect that is held responsible for what some have referred to as 'ecological overshoot', namely the suggestion that since the mid-1970s, humanity's

'Ecological Footprint' has exceeded the earth's biocapacity. As summarized in the Living Planet Report from 2010: "During the 1970s, humanity as a whole passed the point at which the annual Ecological Footprint matched the earth's annual biocapacity — that is, the earth's human population began consuming renewable resources faster than ecosystems can regenerate them and releasing more CO2 than ecosystems can absorb" (WWF 2010: 34). Once seen as able to regenerate and restore in and of itself, in the face of ecological overshoot, the earth is considered as no longer able to sustain its life.

In this chapter, I shift empirical focus from the earth to the human body/soul as yet another site(s) of contestation over anthropogenic effect. For, as I will show, the search for a 'human imprint' has not been limited to the earth's oceans, forests, glaciers, and atmosphere, or to the kinds of scientists who make up the Anthropocene Working Group. A parallel effort to discern a 'human imprint' within the human body/soul itself has been unfolding over the last many decades through debates among medical and social scientists alike. And although the two debates have been and remain somewhat detached, both have pinpointed the industrial revolution of the West as the approximate starting point of those anthropogenic processes that are seen as causative of a 'human imprint'. Moreover, both sets of debates are vital in that they are circumscribed by concerns about human impact on vital processes (both human and non-human), concerns that have crystallized under a common invoking of 'quality of life'.

Another sphere of life where a 'human imprint' has been made increasingly visible by scientists in recent decades is that of human reproduction. Around the same time that plans were being drawn up to form the Anthropocene Working Group, another group of scholars gathered in Copenhagen (in May 2007) for a workshop to discuss the possible effects of chemical toxins in consumer products on human populations. At

stake, according to the workshop's organizers, was nothing short of a crisis: "We stand before a reproductive crisis which we should take just as seriously as global warming … Our species is in danger" (Politiken 2007). It is this crisis of human reproduction – or anatomical overshoot – that will form the empirical backdrop of the analysis that follows. The task of this chapter, however, is not to assess anthropogenic impact on human fertility and fecundity. Instead, as already suggested, I intend to show how a notion of 'human modification' allows us to explore the apparent logic of nature/society separations. While a growing body of anthropological literature has been committed to undermining any supposed epistemological or ontological foundations of nature/society dichotomies, I will instead shift analytical focus to the question of method in the generation of knowledge about the impact of human modification in the sphere of reproduction. In particular, I will argue that when it comes to the problem of infertility, nature/society separations continue to organize the methods, techniques, and tools used to diagnose and assess infertility while at the same time putting these very separations at stake when technological solutions are used to overcome infertility.

I start the chapter by discussing how anthropologists have deployed the notion of 'artificiality' as a means of undermining supposed nature/society dichotomies. However, a resulting empirical focus on specific forms of techno-science associated with the natural sciences – from genomics to biotechnology and reproductive science – I argue has come at the cost of equally important scrutiny of how knowledge is produced through other forms of science. Most importantly, I argue that the birth of 'quality of life' within the social sciences and subsequent methodologies and instruments to measure it have been formative for the field of reproductive medicine. I then go on to show how infertility has come to be configured as a problem in my current site of

research, namely urban China, a country otherwise internationally known for its concerted efforts to curb fertility rates.

<A>*The Natural and the Artificial*

As noted in the opening of this chapter, the proposal to geologically name our current time of living 'the Anthropocene' relies on the idea of 'human modification of the earth'. This -cene is, for the first time (so the argument goes), man-made. Anthropologists and other social scientists have in recent years turned their attention to another form of human modification, namely the modification, or manipulation, of life at molecular and cellular levels through genetic and reproductive technologies. For example, Strathern, in her analysis of the concerns surrounding 'new reproductive technologies' in England, shows how an "artificiality of human enterprise" comes to be contrasted with the "naturalness of biological kinship" (Strathern 1992: 53), while Rabinow suggests that around and through the 'new genetics' "nature will be known and remade through technique and will finally become artificial" (Rabinow 1996: 99). Just like the figure of the cyborg, the notion of artificiality turns out to be very helpful for "the confusion of boundaries" (Haraway 1991: 150), as we find it difficult to pinpoint where the natural ends and the artificial begins.

In the years that have followed, considerable ethnographic attention has been directed at the practices and technologies emerging from the life sciences, or better yet on how practices, technologies, and knowledges of life and living processes come to be co-produced. As a consequence, we have learned how 'new reproductive technologies' and the 'new genetics' have generated new forms of (bio)sociality, citizenship, and politics, all centred on and around 'life itself' (Rabinow 1996; Rose 2006; Franklin et al. 2000).

Notwithstanding an increasing number of ethnographic accounts of co-production in the life sciences, for Escobar an unresolved impasse remains between the natural and social sciences: "For constructivists, the challenge lies in learning to incorporate into their analyses the biophysical basis of reality; for realists it is examining their frameworks from the perspective of their historical constitution—accepting that, as scholars in science and technology studies have been demonstrating, the natural sciences are not ahistorical and nonideological" (Escobar 1999: 3). And while most so-called 'constructivists' within the growing field of sciences and technology studies (STS) would undoubtedly agree that the social sciences are as historical and ideological as any natural science, when it comes to the empirical study of how knowledges and practices of life come to be generated, molecular/cellular understandings of life have been given far greater attention by anthropologists and other STS scholars. What we are missing in these accounts is a curiosity about how social sciences crucially participate in the production of knowledge about life and living, thereby generating certain forms of practice and vice versa. In what follows, I propose some possible directions that might help us in pursuing just such a line of curiosity.

<A>*The Birth of 'Quality of Life'*

Three books stand out as emblematic if we are to somehow situate a birth of the notion of 'quality of life': John Galbraith's *The Affluent Society* (1958), Rachel Carson's *Silent Spring* (1962), and Ivan Illich's *Limits to Medicine* (1976). Spanning the fields of economics, ecology, and medicine respectively, each of these books contributed to a kind of diagnosis of the times: Even if people (in the West) were living longer, more affluent lives, they were at the same time suffering from the pollution, decay, and toxins that industrial societies had brought in their wake (see Wahlberg 2007a). That is to say,

to know how long people were living and how rich they were was no longer sufficient if one wanted to know or assess their lives:

> The family which takes its mauve an cerise, air-conditioned, power-steered and power-braked automobile out for a tour passes through cities that are badly paved, made hideous by litter, lighted buildings, billboards and posts for wires that should long since have been put underground … They picnic on exquisitely packaged food from a portable icebox by a polluted stream and go on to spend the night at a park which is a menace to public health and morals. Just before dozing off on an air mattress, beneath a nylon tent, amid the stench of decaying refuse, they may reflect vaguely on the curious unevenness of their blessings … A satisfactory increase in Gross Domestic Product remains the first test of accomplishment. No one should doubt the convenience of a simple arithmetical measure of success in a world in which so many things are subjective. But it is no longer unusual to inquire about the quality of life as opposed to the quantity of production. (Galbraith 1958: 208, 148)

> Today we are concerned with a different kind of hazard that lurks in our environment – a hazard we ourselves have introduced into our world as our modern way of life has evolved. The new environmental health problems are multiple – created by radiation in all its forms, born of the never-ending stream of chemicals of which pesticides are a part, chemicals now pervading the world in which we live, acting upon us directly and indirectly, separately and collectively. (Carson 1962: 213)

> The true miracle of modern medicine is diabolical. It consists in making not only individuals but whole populations survive on inhumanly low levels of personal health. Medical nemesis is the negative feedback of a social organization that set out to improve and equalize the opportunity for each man to cope in autonomy and ended by destroying it. (Illich 1972: 154)

It is perhaps no coincidence that Galbraith, Carson, and Illich were writing around the exact time that 'ecological overshoot' is thought to have kicked in. And, they were of course not alone; rather they participated in what by the 1960s had become a chorus of critiques of modernity's growing inventory of '-izations' (industrialization, bureaucratization, technologization, rationalization, globalization, medicalization, etc.). It is a style of modernization critique which since the dawn of the industrial revolution in the West has relentlessly diagnosed the alienating, disenchanting, ossifying, repressing, dehumanizing, disorienting, and toxic effects of these –izations (Wahlberg 2007b). If we follow this line of diagnosis, not only is the Anthropocene (catalyzed by the West's industrial revolution) a time of 'human modification of the earth', it is also a time of human auto-modification as the various processes set in motion through human activity since the industrial revolution have come to impact on the very souls and bodies of Mankind. How then might a human imprint be discerned on/within our bodies and souls?

To begin with, we have seen how epidemiologists, endocrinologists, oncologists, reproductive scientists, and other medical scientists have sought to measure, not atmospheric carbon dioxide levels or sea levels, but rather levels of carcinogens and toxins found in biological samples taken from large groups of volunteer human subjects

(blood, semen, tissue, etc.). Such research seeks to identify a cellular/molecular imprint within our biologies, as, in the words of Carson, "toxic materials become lodged in all the fatty tissues of the body" (1962: 170), and to see whether this imprint is causative of pathology, i.e. whether it is associated with diagnosed incidences of certain diseases, from cancer to heart disease and infertility. In this sense, human bodies become one among many other 'natural' elements (alongside the atmosphere, sediments, flora, fauna, etc.) within which anthropogenic pollutants can be found.

Yet, if we read Carson, Galbraith, and Illich carefully, we will note that they are not only concerned with biological imprints – however prominently the toxic side effects of chemicals, modern pharmaceuticals, and other pollutants figure in their diagnoses – rather they are also explicitly pointing to the impact of anthropogenic processes on something that has since come to be known, measured, and assessed as 'quality of life'. That is to say it is not only our biological life (understood as a cellular-molecular process) that has been impacted, it is also Mankind's *experience* of life that has been affected by modernization processes. Each book – and the various 'green' and 'alternative' social movements that would coalesce around the discontents they came to symbolize – is concerned with the human side effects that affluence, extended life expectancy, and urban convenience has engendered. Yet, however phenomenological and personal such experience of life might be, we have seen a marked proliferation of efforts to define, measure, and assess 'quality of life' since the 1960s (see Armstrong & Caldwell 2004). And this time, it has been the social (rather than the biological and/or natural) sciences that have played a crucial role in generating knowledge about the 'quality of life' of nations, cities, populations, communities, and individuals.

We can see then how, just as the earth's biocapacity has come to be seen as weakened by unsustainable anthropogenic processes, so too has humanity's 'quality of

life' come to be seen as diminished by these same processes. I will now turn my attention to the specific context of human infertility in China in order to show how a notion of 'human modification' continues to straddle nature/society separations aided by what Strathern has called "the elision between nature and biology" (Strathern 1992: 173). For infertility is a condition that has brought natural and social scientists into close negotiations about just what it is that constitutes the infertility 'problem'.

<A>*Infertility: A Modern Scourge*

In some ways, the academic debates about anthropogenic imprints between geologists and atmospheric scientists on the hand, and medical and social scientists on the other (most of whom are based in Europe or America) couldn't be farther removed from my current site of research at a fertility clinic and related sperm bank in China's Hunan province. Yet, as became abundantly clear to me shortly after beginning research on reproductive technologies in China in the spring of 2007 (primarily in Beijing and now Changsha), if there was one trope that would constantly recur when talking to reproductive clinicians and scientists it was that of anthropogenic effect. I embarked on my fieldwork just prior to the Beijing Olympic games (held in August 2008), an event which not only reinstated China within a global arena of spectacles, but also spotlighted China's looming environmental crisis (*huánjìng wēijī*). Moreover, those first smog-filled months spent in China were dominated by two major national scandals. Firstly, a drug safety scandal lead to the execution of the former head of China's drug and food safety administration (SFDA) for having compromised public safety by accepting bribes in exchange for drug licenses. And secondly, a food safety scandal lead to the execution of two people for selling milk powder tainted with melamine, which had resulted in six infant deaths and illness for hundreds of thousands more. I even recall reading

somewhat incredulously a news story about how the police had arrested a man for selling fake eggs (eggshells filled with some kind of chemicals). Having my own family with me at the time did not moderate a sense of unease, which most vividly manifested itself when standing in the aisles of a hypermarket about to take care of the week's groceries.

Whenever I have met with fertility clinic doctors and nurses I have always enquired about the prevalence and extent of infertility in China, especially because statistics can be hard to come by. And there are two rather standard answers I have tended to receive. Firstly, that by now in the vicinity of 10% of couples have trouble conceiving 'naturally' (which is comparable to global international estimates), and secondly, that infertility is on the rise. Not being a trained epidemiologist, I have not been so much concerned with the accuracy of these estimates and projections, as I have been interested in exploring how these trends are accounted for. And I have tentatively identified four explanations that are most commonly given by those reproductive scientists I have spoken with.

Firstly, the stress of 'unhealthy modern lifestyles' as men and women don't sleep enough, don't get enough exercise, eat poorly, etc. Such lifestyles, the doctors suggest, are hardly conducive to conception. Secondly, married couples are waiting longer to have a child because of their careers, much like in many other industrialized or industrializing countries, which of course has a marked impact on a couple's fertility. Thirdly, China's so-called 'one child' policy has exacerbated the problem of multiple premarital abortions, which can damage women's reproductive organs seriously and indeed cause infertility. Given the difficulties involved in registering a child born out of wedlock and without a so-called 'pregnancy certificate', the suggestion is that more abortions are being carried out than might be under different population policies, a point

worsened by the hypothesis that modern life is also leading to "increasing promiscuity." And fourthly, environmental pollution, as plastics, pesticides, air pollution, and other chemical toxins are also blamed for rising rates of infertility in both men and women. Indeed, it was suggested to me that pollutants were the main cause behind an apparent disturbing decline in average sperm quality that amounted to a 'sperm crisis' (*jingzi weiji*).

Given the size of China's population, if it is the case that somewhere around 10% of all couples has trouble conceiving, then the numbers are quite staggering. Yet, given China's well known and, at times, internationally controversial efforts to curb population growth since the 1980s, is infertility in fact considered a 'problem'? This has always been my second question to informants, "How can it be that infertility treatment is such a booming business in a country that is working so hard to keep population growth down?" The answer to this question is, in many ways, much more complex.

First of all, what I have learned is that, just as was the case in the United Kingdom, where the world's first IVF (in vitro fertilization) child was born in 1978, assisted reproduction has had a 'difficult birth' in China. Robert Edwards and Patrick Steptoe, the first to confirm the effectiveness of the IVF method in humans, have suggested that the resistance they met from peers, government officials, and research funding agencies was at least partly grounded in a "belief that infertility should not be treated because the world was overpopulated" (quoted in Johnson et al. 2010: 2). China's first IVF baby was born in 1988, an event that was met not only with wonderment but also great caution by a government that had only recently embarked on a nationwide effort to bring down fertility rates. Research into and provision of IVF was stalled, as some doctors and ministry officials expressed concern that assisted reproduction was contrary to the country's population policies (see Handwerker 2002).

By the late 1990s, however, the tide slowly began to turn. As one leading reproductive scientist explained to me, when development of fertility treatment was meeting so much resistance from government officials, "I told them that my opinion is that the population policy requires that every family only has one child, but this is for fertile couples, then you have one child. But for infertile couples … we should also help them to have one healthy baby. So this is the real population policy … I told them that our population policy should be based on this idea that every family should have one healthy baby, not only fertile, but also infertile couples, so this is fair to every family."

At the same time, just as has been the case in many countries, the stabilization of infertility as a 'disease' was, and in many ways still is, very much underway in China. The condition is very much stigmatized and remains taboo while no health insurance schemes (whether private or public) cover infertility treatment, which can be very costly for couples. As Melissa Pashigian, writing on infertility treatment in Vietnam, has put it, "Infertility is a striking condition in any country in that it can be difficult to resolve, is not life threatening, and for some, might not be considered an illness at all" (2012: 204). Being involuntarily childless is of course nothing new in China, what is new is its techno-medicalization via the range of treatments offered by over 200 infertility treatment clinics throughout the country.

When I have asked in which ways infertility or being involuntarily childless is understood as a disease, I have usually been given standard biological explanations for infertility such as blocked tubes, azoospermia, or endometriosis. When asked about those many cases of so-called 'unexplained infertility' (when no biological cause can be isolated) my informants have then gone on to distinguish between the biology of infertility on the one hand and the social experience of involuntary childlessness on the other: "Surely a majority of infertility has a biological origin, however suffering with

infertility is not only a biological problem, but also a psychosocial process." It is this social experience of involuntary childlessness that is seen to cause suffering: "You have to understand that in China, not to have a child is a big problem, it causes a lot of shame (*xiuchi*)" (see also Wahlberg 2010). Add to this shame the pressures wrought by a 'one child policy' and a collapsing social security net in the wake of economic reforms, whereby one's child also becomes an integral part of one's pension plans, and we get a sense of the urgency and 'desperation' that can surround involuntarily childless couples' quests for conception in China. And so, while the forms of infertility treatment offered in modern IVF clinics are biologically grounded, at a conference on reproductive technologies that I attended in Changsha, Xiao Shuiyuan from the Central South University argued that "improving the quality of life [*shenghuo zhiliang*] of the couple and the family should be considered the primary purpose of treatment."

<A>*Measuring Quality of Life*

It seems then that apparently rising rates of infertility in China can be and in large measure have been accounted for in terms of human auto-modification. Rising infertility rates, perhaps in the same way that rising sea levels are seen to be, have become an anthropogenic effect, the imprint of which can be discerned by reproductive scientists in Chinese bodies with the aid of laparoscopes and microscopes. Yet, what I want to suggest is that yet another instrument, the 36-Item Short Form Health Survey (and others like it), has become as important in the measurement of the impact of this particular (and other) anthropogenic effects. Let me explain.

While attempting to contextualize my interest in the newly booming infertility treatment sector in China I bumped into an article by social psychologist Liu Li entitled "Quality of Life as a Social Representation in China" in which he notes that: "China has

been undergoing a massive and rapid transition towards a market economy since the early 1980s … improvement in material wealth goes hand in hand with environmental degradation; greater freedom links up with social alienation; increased opportunities blend with insecurities and uncertainties; modern lifestyles confront the traditional way of life" (Liu Li 2006). When I met up with him in his campus office at the Beijing Normal University, he suggested that an emergent interest in 'quality of life' (*shenghuo zhiliang* or *shengming zhiliang*) was directly linked to the rapid modernization that especially urban populations in China had experienced in the last decade. The development and application of QoL indicators in China, he said, was only nascent but there was plenty of interest.

In the context of infertility, this certainly seems to be the case. Since I met with Liu, Lau et al. (2008) have published a paper on "Infertility-Related Perceptions and Responses and Their Associations with Quality of Life among Rural Chinese Infertile Couples," and my colleagues at the Reproductive and Genetic Hospital in Changsha have conducted pilot research inspired by the Copenhagen Multi-centre Psychosocial Infertility protocols used to investigate the psychosocial consequences of infertility (with a focus on fertility problem stress, marital benefit, communication, coping, social relations, and social support as well as attitudes to and evaluation of fertility treatment) (Schmidt et al. 2003).

What such research instruments, which often bring social and medical scientists into collaboration, are used for is to measure the 'impact' certain variables can have on the 'quality of life' or 'coping capabilities' of a person. Through questionnaires, infertile couples are asked questions like "How much of the time during the past 4 weeks: Did you feel full of pep?; Have you been a very nervous person?; Did you have a lot of energy?; Did you feel tired?" or "People cope with their fertility problem in

different ways. How do you cope? Avoid being with pregnant women or children?; Ask a relative or friend for advice?; Find other life goals?" Having completed a questionnaire, an infertile man or woman can then be given a Quality of Life score or a Coping score, which can then be used to compare across populations and against other variables. Following their research, Lau et al. concluded that "a lower income, a worsened spousal relationship, infertility related perceptions, pressuring oneself or spouse due to infertility, and a strong desire for children were significantly associated with a lowered quality of life" (2008: 248).

The point I am making here is that while it might be tempting to scoff at the formulations in such questionnaires, we need to take QoL or Coping scores as seriously as we do sperm quality scores or histologic evaluations of endometrial biopsies. They are just as instrumental in the circumscription and stabilization of infertility as a problem that requires therapeutic intervention. And in fact, when it comes to making a case for providing fertility treatment in China, it is the severity of the suffering of involuntarily childless couples that every one of the doctors and nurses I have spoken with has flagged. Infertility might not be life threatening but it certainly causes suffering and it is this suffering that justifies the enormous amounts of resources used (a single course of IVF can cost as much as €3,000) to try to overcome it. And the answer I got when I asked a doctor whether overcoming infertility leads to an increased quality of life for a couple, was "Absolutely, you should see how happy they are, this is the best part of my job."

<A>*Conclusion: Overcoming China's Anthropocene?*

What this excursion into the ways in which infertility or involuntary childlessness has emerged as a problem in China has allowed us to do is to examine the concrete ways in

which human modification (anthropogenic effect) is currently being implicated in certain (often deleterious) global effects. Zalasiewicz and colleagues have suggested that more than an actual geological time (this has yet to be determined by geologists and other natural scientists) the Anthropocene is perhaps better understood as a "vivid yet informal metaphor of global environmental change" (2008: 7) which was "coined at a time of dawning realization that human activity was indeed changing the Earth" (2010: 2228).

If we follow this heuristic, we are provided with a productive means of revisiting and rethinking nature/society separations. In contrast to Haraway's and Rabinow's buoyant praises of the cyborg and artificiality, the Anthropocene metaphor is decidedly pessimistic. It highlights not techno-possibilities, but techno-catastrophes. In the Anthropocene metaphor, a notion of 'human activity' is what links nature and society, or more specifically, particular configurations of human activity (connections, associations, alliances, organizations) have set in motion particular social processes (those many '-izations'), which have left their imprints in nature, a nature which comprises the earth and its inhabitants.

As noted in the introduction to this volume, the most comprehensive influence of the nature/society distinction has perhaps been the division of science itself into natural and social sciences. What I have argued in this chapter is that those of us engaged in science and technology studies must not neglect the ways in which social sciences come to take part in the co-production of knowledge about life and living. As such, the separation I have focused on is that conjured up by the natural and social sciences respectively as a matter of methodology (shall I examine a cell or shall I listen to an involuntarily childless couple). We should not underestimate the important place that different forms of methodology have in processes of co-production. A 36-Item

Short Form Health Survey is as palpable as a microscope when it comes to producing knowledge about and generating practices to tackle infertility.

The question I have asked is: How has infertility emerged as a problem in China over the last few decades? The answer, I have suggested, may be found through an Anthropocenic gaze which has informed the diagnoses of both natural and social scientists concerned with the plight of involuntarily childless couples. As such, what I have shown is that in the emergence of infertility as a problem in urban China nature and society remain infused. The problem is at once social and natural (biological).

Moreover, as China faces both its environmental and its reproductive crises we cannot help but be struck by the technological solutions which are being proposed to remedy them. The earth's biocapacity and Chinese people's reproductive capacities are at stake, and it seems overcoming China's Anthropocene requires more rather than less techno-science in the form of, for example, green energy or reproductive technologies. And so perhaps the Anthropocene will after all end up alongside the cyborg and artificiality as a metaphor of techno-possibility.

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